

Public Meeting

Effluent Guidelines for the Construction and Development Industry

United States Environmental Protection Agency
Office of Water
Washington, DC

April 20, 1999



Agenda

9:15 am	Welcome and Introduction	Tudor Davies, Director Office of Science and Technology
9:20	Effluent Guidelines Program and the Construction and Development Industry	Sheila Frace, Director Engineering and Analysis Division
9:40	Overview of Engineering Assessment Process	Marvin Rubin, Chief Energy Branch
10:15	Construction Industry Best Management Practices and EPA's Data Needs	Jesse Pritts, Civil Engineer
10:25	Questions	
10:30	Break	
10:45	Overview of Economic Analysis for Effluent Guidelines and EPA's Data Needs	Neil Patel, Chief Economic and Statistical Analysis Branch
11:10	Stakeholder Participation and Access to Information	Eric Strassler, Project Manager
11:15	Questions and Discussion	
12:00	End	



Introduction

- Welcome
- EPA Project Team
- Purpose of Today's Meeting



Effluent Guidelines and the Construction and Development Industry

- What are Effluent Guidelines?
- How do they apply to activities covered by NPDES permits?
- How Are Effluent Guidelines Developed?



The Clean Water Act (1972)

- **Goals (e.g. fishable, swimmable waters)**
- **New mechanisms to meet goals**
 - ▶ Every discharging operation to meet requirements based on affordable, existing control technologies: *technology-based requirements*
 - ▶ When technology-based requirements insufficient to achieve water quality, additional controls required: *water quality-based requirements*



What are Effluent Guidelines?

- **Nationally applicable*, technology-based standards that can include:**
 - ▶ limitations on discharge characteristics (e.g. pollutant loads)
 - ▶ control measures and practices available to eliminate the discharge of pollutants

★ can vary based on type of operation and other engineering factors

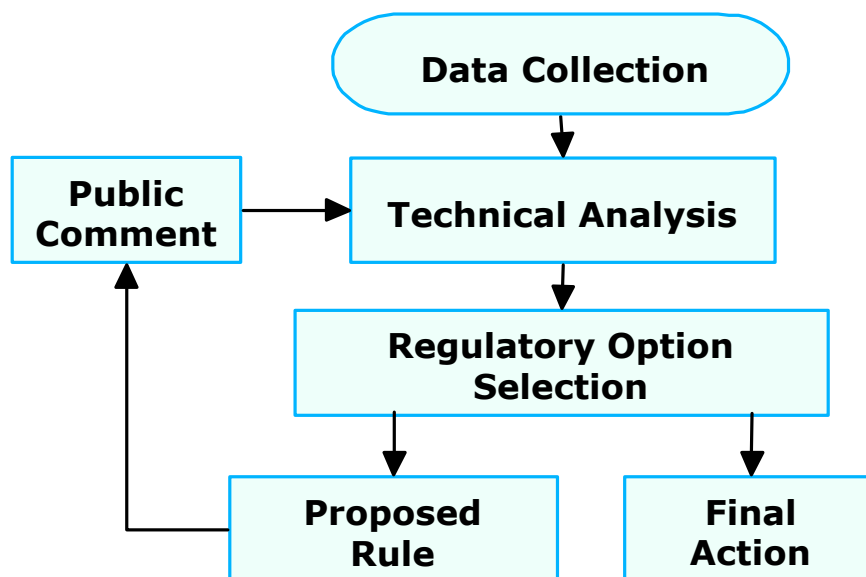


How Do Effluent Guidelines Apply to Activities Covered by an NPDES Permit?

- When promulgated, Effluent Guidelines become the standard minimum requirements in new & re-issued permits for the specified category
- States may issue more stringent requirements:
 - ▶ Technology based, and/or
 - ▶ Water quality-based



How Are Effluent Guidelines Developed?



Overview of Engineering Assessment Process

- **Determine appropriate requirements and their costs**
 - ▶ appropriate limits (BMPs, Design/Maintenance Criteria, etc.) based on *Best Available Technology*
 - ▶ costs: used to determine economic achievability



Best Available Technology Determination: Characterize Industry

- **Wastewater Characteristics**
 - ▶ types of pollutants
 - ▶ treatability of wastewaters
 - ▶ process characteristics (pollution prevention opportunities; subcategory potential)
- **Best Effluent Discharge Facilities**
 - ▶ representativeness of industry
 - ▶ means of achieving effluent quality (characterization of BMP performance)



Determine Costs for Economic Achievability Analysis

- **Identify Technology Options**
- **Determine Engineering Costs**
 - ▶ capital
 - ▶ operating and maintenance
 - ▶ monitoring/performance evaluation



Identify Benefits

- Pollutant Removals
- Mitigation of Effects



Construction Industry Best Management Practices and EPA's Data Needs

- **Scope of Regulation**

- ▶ Applies to runoff from construction activities during the active phase of construction, as well as to post-construction runoff



Why Do a Regulation?

- **Construction**

- ▶ NPDES program establishes permitting process, but municipalities determine appropriate level of control
- ▶ EPA anticipates that some good programs will be developed, however many will lack the technical resources to determine an adequate level of control
- ▶ Current erosion and sediment control requirements are too general, unclear, outdated and not providing an adequate level of receiving stream protection



Why Do a Regulation?

■ Construction (continued)

- ▶ Erosion & sediment controls are selected, but are not *designed*
- ▶ High rate of failure of currently used erosion and sediment controls due to misapplication, improper sizing, lack of proper maintenance
- ▶ Regulation will provide a minimum technology-based requirement
- ▶ Design criteria & performance goals will provide a means to measure compliance



Why Do a Regulation?

■ Post-Construction

- ▶ BMPs are being built, but are they working?
- ▶ Consideration of runoff issues during the *planning* phase of the development allow for consideration of more water-quality sensitive site aspects
- ▶ Runoff minimization and low-impact development practices can reduce the need for capital and maintenance-intensive conventional BMPs



Why Do a Regulation?

- **Post-Construction (continued)**

- ▶ Provide incentives and guidelines for builders/developers to use low-impact site designs
- ▶ Current BMP guidelines may not provide an adequate level of receiving stream protection



Key Challenges

- Maintain flexibility to allow consideration of local conditions
- Provide a level of receiving stream protection that is not cost-prohibitive
- Determine effectiveness of various types of controls
- Provide alternatives



Rulemaking Focus

- Performance data along with actual level of field implementation
- Practices that limit erosion at the source, instead of controlling sediment once generated
- Practices that limit excess runoff generation
- Link BMP effectiveness to BMP design criteria
- Proper BMP selection, design, construction and maintenance



Types of Erosion and Sediment Controls

- **Erosion Controls**
 - ▶ Vegetation
 - ▶ Mulching
 - ▶ Diversions
 - ▶ Erosion Control Blankets
 - ▶ Geotextiles
- **Sediment Controls**
 - ▶ Swales
 - ▶ Filter Strips
 - ▶ Sediment Basins
 - ▶ Silt Fence



Types of Post-Construction Storm Water Controls

- **Structural Controls**

- ▶ Retention Practices
- ▶ Infiltration Practices
- ▶ Filtration Practices

- **Non-Structural and Low-Impact Development Controls**

- ▶ Maintaining Stream Buffers
- ▶ Sensitive Area Protection
- ▶ Minimizing Soil and Vegetation Disturbance
- ▶ Minimizing Impervious Surfaces
- ▶ Minimizing Directly Connected Impervious Surfaces



Data Needs

- **Industry Characterization Data**

- ▶ baseline of pollutant/flow discharges from various land uses
- ▶ soil/sediment loss from various construction activities
- ▶ baseline of current E&S control usage and inspection/enforcement/oversight for various construction activities
- ▶ regional differences in E&S control selection & usage
- ▶ local E&S and stormwater requirements, laws, ordinances, etc.



Data Needs

■ Industry Characterization Data (continued)

- ▶ local site plan review requirements/baseline of level of plan review/enforcement
- ▶ baseline of current Low Impact Development (LID) and Conservation Design (CD) usage
- ▶ baseline of current post-construction BMP usage
- ▶ maintenance requirements of E&S controls



Data Needs

■ Performance/Effectiveness Data

- ▶ performance (degree of runoff prevention, erosion reduction or sediment removal) of various erosion and sediment controls
- ▶ effectiveness (reduction in runoff production & pollutant generation, and degree of receiving water protection) of LID and CD practices
- ▶ effectiveness (reduction in pollutant export, degree of receiving stream protection/improvement) of conventional post-construction BMPs, particularly innovative and new designs
- ▶ effectiveness of infiltration/on-site retention practices



Data Needs

■ Environmental Impacts Data

- ▶ receiving water impacts (habitat degradation, aquatic life impacts, turbidity, reservoir sedimentation, channel erosion, increased flooding potential, etc.) of construction activities
- ▶ regional rainfall/runoff variation and effect on soil loss/construction and development impacts
- ▶ secondary impacts (temperature increase, shifts in trophic status, nutrient sequestering, groundwater contamination, residuals management) of post-construction BMPs
- ▶ secondary impacts (decentralization, infrastructure, utilities) of LID and CD practices



Tools and Resources to Aid in Regulation Development

- ASCE National Stormwater BMP Database
- Hydraulic, Hydrologic and Soil Loss Modeling (TR-55, RUSLE, etc.)
- State and Local BMP design guidance
- ASCE/WEF Manuals of Practice
- USDA/NRCS, USACE, FHWA, USGS
- Other resources as they become available



Overview of Economic Analysis for Effluent Guidelines and EPA's Data Needs

■ Role of Economics in Effluent Guidelines

- ▶ Assess economic impacts associated with costs of compliance
- ▶ Provide recommendations in terms of "economic achievability" for various control options



Statutory and Administrative Requirements

- Clean Water Act (demonstrate "economic achievability")
- Executive Order 12866 (conduct cost/benefit analysis)
- Regulatory Flexibility Act, as amended by the Small Business Regulatory Enforcement Fairness Act
- Unfunded Mandates Reform Act



Economic Measures for Impacts of Compliance

- **Economic Achievability**

- ▶ closure analysis
- ▶ job losses

- **Small Business Impacts**

- ▶ consider alternatives to minimize impacts on small entities
- ▶ outreach to small entities
- ▶ small entity participation as required by SBREFA



Economic Measures for Impacts of Compliance (continued)

- **Other Financial Measures**

- ▶ ratio of compliance cost to sales
- ▶ change in operating costs
- ▶ effects on profitability
- ▶ price changes

- **Other Community Impacts**



Cost-Effectiveness Analysis

- Measure of relative efficiency of a technology option
- Compares costs and pollutant removals
- Relative toxicity consideration



Benefit Analysis

- Required by Executive Order 12866
- Health, Recreational and Non-Use Benefits
- Quantification and Monetization



Technology and Economic Considerations

Level of Control	Technology Considerations	Economic Considerations
Best Practicable Technology (BPT)	Average of Best Existing	Comparison of costs and effluent reduction benefits
Best Conventional Technology (BCT)	Conventional Pollutant Reduction	Cost-reasonableness (two-part cost test)
Best Available Technology (BAT)	The Best Available	Economic achievability
New Source Performance Standards (NSPS)	The Best Demonstrated	Consider costs



Data Collection for Economic Analysis

- Number of Construction Starts (Location and Size)
- Number of Construction Firms
- Number of Small Entities
- Number of Employees
- Representative Sale Prices for Building Categories
- Market Structure (Supply and Demand; Competition)



Stakeholder Participation and Access to Information

- EPA will place fact sheets, draft technical documents and other material for public review on the Internet:
www.epa.gov/OST/guide/construction
- Internet links will be provided to other information resources
- Send Data, Reports and Comments to EPA Project team



EPA Project Team

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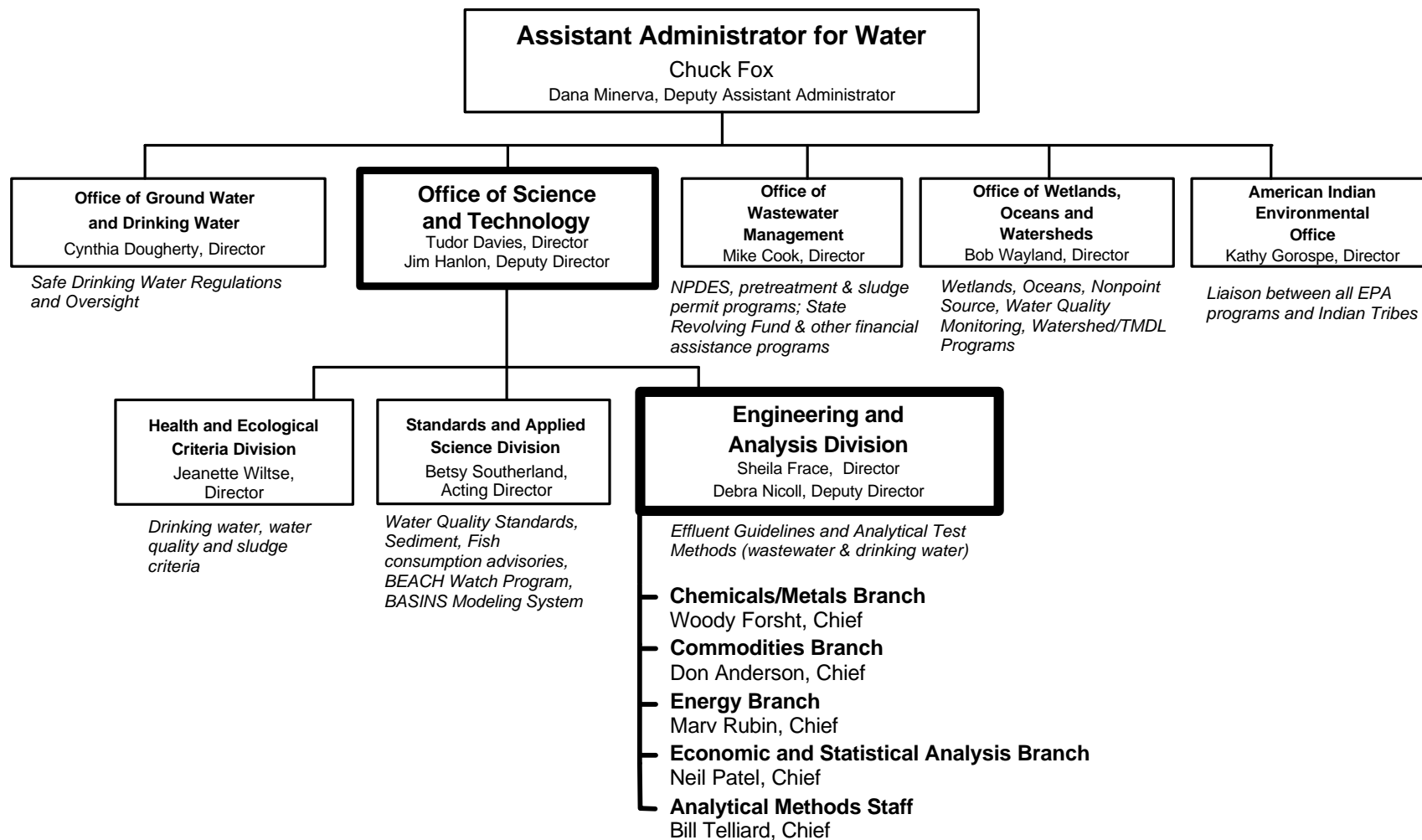
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Environmental Protection Agency Office of Water

Organization Chart



Regulation Development Process for Construction and Development Effluent Guidelines

